ABSTRACT OF THE DISCLOSURE

The present invention relates to the production of a product compound having a structure according to Formulae IA and/or IB:

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B

$$C = R^1$$
 $C = R^1$
 $C = R^1$
 $C = R^2$
 $C = R^3$
 $C = R^3$
 $C = R^3$
 $C = R^3$

(IA)

B

$$C = R^1$$
 $OH = A = CH_3$
 CH_2
 CH_3
 CH_3

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(IB)

wherein

n is 0 or 1;

R¹ is hydrogen or hydroxy;

R² is hydrogen;

or, when n is 0, R^1 and R^2 taken together form a second bond between the carbon atoms bearing R^1 and R^2 , provided that when n is 1, R^1 and R^2 are each hydrogen;

R³ is —COOH or —COOR⁴;

R⁴ is an alkyl or aryl moiety;

A, B, and D are the substituents of their rings, each of which may be different or the same, and are selected from the group consisting of hydrogen, halogens, alkyl, hydroxy, and alkoxy.

This process involves incubating a starting compound having a structure according to Formulae IIA and/or IIB:

B

$$C = R^1$$
 $C = R^1$
 $C = R^1$
 $C = R^2$
 $C = R^2$
 $C = R^3$
 $C = C = R^3$
 $C = C = R^3$

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B

$$C = R^1$$
 OH
 R^2
 CH_2
 CH_3
 CH_3
 CH_3
 CH_3
 CH_3
 CH_3

- wherein R³ is -CH₃ and R¹, R², A, B, and D are defined above. 5 in the presence of a microorganism under conditions effective to produce the product compound. The microorganism can be from the genus Streptomyces, Stemphylium, Gliocladium, Bacillus, Botrytis, Cyathus, Rhizopus, Pycniodosphora, Pseudomonas, Helicostylum, Aspergillus, Mucor, Gelasinospora, Rhodotorula, Candida, Mycobacterium, or Penicillium. Alternatively, the microorganism can be
- 10 Cunninghamella bainieri.